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Conference Abstract

Mobilizing International Australian Collections Locally for Global Benefit

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Abstract

From the earliest days of Australian colonization and exploration, botanical collections have been sent to herbaria overseas for western scientific study. Where there is a duplicate set, collections have been repatriated back to Australia with time, but many specimens remain housed overseas. These specimens document the floral diversity of Australian ecoregions that have now been altered, and of species that have not yet been described and may now have been lost to our ecosystems. Many such collections have type specimens, and others have historical exploration and botanical significance, many of which are not readily available for taxonomic and cultural research. One such collection, the Cambridge University Herbarium (CGE), is the fourth largest herbarium in the United Kingdom (Gardiner 2018) and contains more than 13,700 specimens of Australian origin.

A collaborative project between the Western Australian Herbarium (PERTH) and CGE, supported by The Winston Churchill Memorial Trust, Australia, has enabled Australian collections to be located, updated, digitized, mobilized, and shared—decolonization and repatriation in digital form.

With only five weeks to undertake collection-based activities at CGE, the effort focused on the Australian vascular plant collections. These were systematically located and retrieved

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from the CGE world collections of flowering plants and ferns (conveniently geographically arranged), and the John Lindley and Charles Fox Bunbury collections, which were only partially incorporated into the world collecitons.

Curation was limited to significant repairs and incorporation of loose specimens into the collections. Annotated type specimens were placed within separate folders for easy future identification and curation. Barcodes were adhered to each sheet, and basic metadata was gathered prior to imaging (taxonomic name on the sheet, storage location, type status).

Sheets were imaged using two Nikon D850 45.7MP digital single-lens reflex cameras in a lightboxes; image files were converted to 16-bit TIFF for archival storage, full-sized JPGs, and 1MB JPGs for online delivery.

With approximately half of the specimens transcribed in September, 2024, preliminary findings include the following:

- The majority of the Australian collections in CGE are from Western Australia, Tasmania, New South Wales, and South Australia with significantly fewer collections from other Australian states and territories.
- The majority of specimens were collected in the 1800s and early 1900s, with dominant collectors being James Drummond (collecting in Western Australia), Ronald Gunn (collecting in Tasmania), William Philip Hiern, John Lhotsky, Joseph Jackson Lister, Sir Thomas Livingstone Mitchell, Georgiana Molloy, Fredrick Stimpson Salisbury, and William John Swainson.
- Prominent individual personal herbarium collections represented included those of Charles Morgan Lemann (1806–1852), John Lindley (1799–1865), John Stevens Henslow (1796–1861) and Charles Edward Moss (1870–1930).
- Most specimens have little locality information (e.g, "New Holland", "Van Diemen's Land", "Swan River").
- More than 475 type specimens have been identified.
- More than 145 vascular plant families, 875 genera, and ca. 4500 (many non-current) species are housed within the collections (representing approximately 15% of Australian vascular plants).

Full transcription of label data (collector, collection date, collection number, locality information, and other collection information) and taxonomic curation is ongoing. Data and high resolution images will be made available soon to the scientific community, historians, and the public for data curation and annotation through the Atlas of Living Australia and other digital platforms. Access to these specimens will be invaluable for botanical research in this age of accelerated biodiversity loss, and as travel to, or shipping of, physical specimens is increasingly fraught and costly.

Keywords

citizen science, data repatriation, decolonization, digitization, historical collections

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Conflicts of interest

The authors have declared that no competing interests exist.

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